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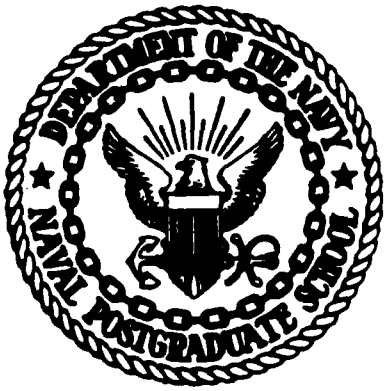

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THESIS

The Applicability of UADPS-SP to a DBMS Environment

by

Roderick R. Robertson

June 1981

Thesis Advisor: Norman F. Schneidewind

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This thesis addresses some of the benefits which may be gained from changing UADPS-SP to a Data Base Management System (DBMS). Some of these benefits include a reduction of training time for newly arrived personnel, an improved monitoring of in-house shipping-receiving functions and status, and a reduction in the delay time for queries and program changes.

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The Applicability of UADPS-SP to a DBMS Environment

by

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Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN INFORMATION SYSTEMS

from the

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ABSTRACT

This thesis addresses some of the benefits which may be gained from changing UADPS-SP to a Data Base Management System (DBMS). Some of these benefits include a reduction of training time for newly arrived personnel, an improved monitoring of in-house shipping-receiving functions and status, and a reduction in the delay time for queries and program changes.

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I. INTRODUCTION

A. GENERAL

The Uniform Automated Data Processing System for Stock Points (UADPS-SP) was designed to handle the supply and financial transactions for activities such as naval supply centers, naval shipyards, naval supply depots, industrial naval air stations and any other activities which perform major supply operations.

This thesis takes a macro view of the UADPS-SP functions as they apply to the Naval Supply Center OAKLAND. The majority of the surface-combatant and aviation related material carried in inventory at NSC OAKLAND is pushed from the inventory control points Ships Parts Control Center in Mechanicsburg, Pennsylvania, and the Aviation Supply Office in Philadelphia, Pennsylvania, respectively. Material is referred to as "pushed" when the applicable inventory control points assume all responsibility for paying the costs of the material, rather than the receiving activities. By design, UADPS-SP affords the NSC the capabilities for documenting material receipts, issues, and backorders. Also built into the system is the capability to perform the required financial transaction when issues and receipts affect the Navy Stock Fund.

Having analyzed some of the functions of UADPS-SP with several middle managers and division directors at NSC Oakland, it can be seen that this system performs the functions for which it was originally designed.

NSC Oakland is presently in the process of developing a management information system that will give managers a tool with which to make better decisions concerning their particular functional areas. Why not take the system currently installed in-house and see if it is feasible for that system to provide managers with the type of information that is required in performing their tasks? Based on some preliminary documentation, most of the information required is maintained within the UADPS-SP System.

B. OBJECTIVE

The main objective of this thesis is to provide a broad overview in assessing the benefits that may be derived from converting UADPS-SP to a Data Base Management System.

C. RESEARCH METHODOLOGY

This research began by carefully examining the UADPS-SP Executive Handbook in order to provide a brief description of each of the major files. Liaison with the UADPS Coordinator at NSC Oakland was established early in the project. Liaison was also established with several division directors in order that they would be able to describe the role UADPS-SP plays within the specific functions of their organization.

Other research efforts included the review of governmental documents, professional periodicals, texts, brochures and technical papers.

D. THESIS ORGANIZATION

Chapter One of this thesis is an introduction briefly addressing UADPS-SP in addition to discussing the objectives and research methodology. Chapter Two provides a historical overview of the Uniform Automated Data Processing System for Stock Points from inception to the present. Chapter Three looks at factors that have to be considered when changing from one system to another. Also addressed is the importance of the Data Dictionary and the role of the Data Base Administrator. Finally, Chapter Four discusses the applicability of UADPS-SP to a Data Base Management System.

II. THE HISTORICAL BACKGROUND OF UADPS-SP

The idea of utilizing computers for supply and financial transactions, and maintaining stock records at major supply distribution points came into existence when weapon systems were not as complex as they are now. In 1956, the first test was successfully completed at the Navy Supply Center in Norfolk, Virginia. Based upon NSC Norfolk's success computers of various sizes were installed at other support centers such as Navy Supply Centers, Depots, Shipyards, and Industrial Naval Air Stations.

In order to achieve some form of standardization, the Bureau of Supplies and Accounts (now the Navy Supply Systems Command Headquarters) established a full-time committee to document standardization procedures. The principal goal of the Bureau of Supplies and Accounts was to prevent each individual activity from implementing its own plans of mechanized procedures.

Although plans were made to have the first segment of UADPS-SP implemented in 1962, the actual implementation did not become operational until March, 1953. After implementing the Requisition Status File, Receipt/Due File, Demand Processing File, Stores Accounts File, and Financial Inventory Control File, the Bureau of Supplies and Accounts realized that these applications would not handle the complexities

of the systems for which they were intended to be used. This discrepancy signaled to the Bureau of Supplies and Accounts to convene a full-time task force for the overhauling of the programs.

In order to preclude each supply center, depot, or any other supply activity from maintaining its own UADPS programs, the Data Systems Support Office (DASSO) was established. DASSO was the central maintenance organization whose primary function was to develop and maintain all UADPS programs. The Stock Point Support Division within DASSO was granted the responsibility for developing and maintaining UADPS-SP within the guidelines for which it was initially established by the Bureau of Supplies and Accounts.

In the early 1960's, major stock point activities underwent equipment changes. The IBM 1301 disk file was replaced by the IBM 2302 disk files. Because this replacement was being performed on an incremental basis, separate assemblies had to be maintained for both the 1301 and the 2302 configurations. UADPS-SP continued to thrive in an environment of rapid change.

By 1966 and 1967, an effort was made to improve hardware and software. The IBM 7740 slave computer and IBM 1050 remote terminals were installed in order to increase remote terminal processing capabilities in addition to greater operating flexibility. A tailored software system called COPE II came with the 7740 and 1050. The fact that COPE II

was developed in-house by the United States Navy is extremely worthy of note. Further advancement in the software and utility program areas came forth with the implementation of the new Program Library Maintenance program.

Today, the UADPS programs are operated on the Burroughs 3700 and 4800 mainframes. UADPS-SP is also currently supported by utility subsystems such as the Integrated Disbursing and Accounting/Data Entry (IDA/DX), Automation of Procurement Accounting Data Entry (APADE), and the Naval Transportation Documentation System (NAVTDS).

The IDA subsystem allows accounting and disbursing functions to be combined at selected authorized accounting activities as opposed to disbursements via Naval Regional Finance Centers.

The object of APADE is to design and install an automated procurement system which addresses the total needs of the procurement process throughout the life of the procurement actions, beginning with the receipt of a requisition and ending with the recording of the accounting data.

Shipment planning and the automated preparation of the shipping documents are the objectives of NAVTDS.

USDPS-SP has been expanded to include activities such as Marine Corps Air Stations, the Inventory Control Points, Naval Submarine Bases, and the NARDACs.

A. MAJOR FILES

This section will briefly describe the major files of the Uniform Automated Data Processing System for Stock Points [1: pp. 4-1-8]. The files are divided into two broad categories -- disk/random access files, and magnetic tape/sequential access files. The functional use of a file determines whether it qualifies for tape or disk storage.

1. Disk Files

The disk files to be addressed in this section include:

a. Financial Inventory Control Ledgers

b. In-Process/Backorder File

c. Issue Group I and II Index File

d. Master Stock Item Record

e. Name and Address File

f. Planned Requirements/Reservation File

g. Receipt/Due File

h. Repairable Induction File

i. Serial/Transshipment File

j. Requisition Status File

k. Address Master File

The Financial Inventory Control Ledgers contain the dollar value of material stocked at the Navy Supply Centers. The ledger is accumulated by the Federal Supply Classification or a three digit accounting code listed by cognizance symbol, condition codes, and selected material control codes. Fields exist for posting the value of issues, recepits,

gains by inventory, and losses by inventory. After each posting a closing inventory balance is adjusted.

The In Process/Backorder File contains records of all stocked items on backorder. This file provides an image of the requisitioned supply document with the applicable accounting data. This file is balanced and processed daily.

The records of the Issue Group I and II Index File provide UADPS users with the document number of high priority requisitions, the time and date the requisition was processed, and the stowage location of the requested material. The records are maintained in this file until the Proof of Shipment is processed.

The Master Stock Item Record contains stock status data for each item carried in stock at the supply activity. Records are accessed by the National Item Identification Number (NIIN).

The Unit Identification Codes for customers supported by stockpoint and other supply activities are maintained in the Name Address File. This data is basically used for the preparation of shipping documents.

The records of the Planned Requirements/Reservation File contains the requirements established or placed upon the supporting activity. In other words, the requirements are created when inventory control points such as SPCC or ASO push material to the stockpoint and when item quantities are increased due to heavy demand.

Record entries of the Receipt/Due File provide an image of the Prepositioned Receipt/Due Card. These entries are randomly stored, with the contract or requisition number serving as the access key. The Receipt/Due File informs the users of the material that is due, or recently received, regardless of whether the received items have been stored.

The Repairable Induction File contains a record of each component inducted into the depot level repair program (Naval Air Rework Facility) by the industrial stock points.

The Requisition Status File contains randomly stored records of customer's requisitions and the supply action taken by the stock point to satisfy the customers' requirements. The Requisition Status File is supposed to be constantly up-to-date for the purpose of expediting customers' follow-ups.

The dual purpose Serial/Transshipment File consists of a serial numbered record for each non-ready for issue (defective) component carried in stock and a record of each defective component transshipped to another activity. A serial number control record for the Fleet Ballistic Missile Management System is also included in the Serial/Transshipment File.

The Address Master File includes the address for mailing checks to employees or to some other financial institution.

2. Magnetic Tape Files

The major files which are maintained on magnetic are as follows:

a. Budget File

b. Excess Holding File

c. Fund Code File

d. Funds Resource File

e. General Ledger File

f. Job Cost and Reimbursable Work Order File

g. Job Order File

h. Master Billing Cross Reference File

i. Master Employee Record File

j. Non-Carried Demand History File

k. NSF/RIS Ledgers and Transaction Records File

l. Receipt History File

m. Requisition History File

n. Repairable Induction Purge File

o. Suspense File

p. Purchase Cross-Reference File

q. Transaction/Reconstruction File

r. Unfunded Accounts Receivable Ledger File

s. Unliquidated Transaction/Document Control File

t. Unmatched Summaries and Receipts File

u. WISS Supply MISR File

v. Fund Status File

w. Title Table File

x. Master Leave Record File

y. Master Personnel Record File

The Budget File is used to accumulate actual work units at the functional and cost account levels for purposes of the Expense Operating Budget Cost and Performance Reports.

The Excess Holding File contains records which are updated to reflect the status of the completed records removed by the monthly purge. The Report of Customer Excess records awaiting disposition and/or creditability instructions from the appropriate Integrated Manager or Inventory Control Point is also included in this file.

The Fund Code File contains a record for each of the Navy's Standard fund codes as well as those for other military departments. Local Navy fund codes have also been established for common/local UADPS-SP users in order to record losses, gains, and non-reimbursable issues.

The file created to assist users in complying with fund authorization accounting is the Funds Resource File.

A General Ledger File is maintained for each operating budget. The current month and amount for each general ledger account is included in this file. The account for unfilled orders for the maintenance of real property classified within reimbursable categories is also stored in the General Ledger File.

The Job Cost and Reimbursable Work Order File maintains two types of records -- Job Cost and Reimbursable Work

Order Records. The Job Cost record includes a job order number, shop expense element, accounting spread, and other cost categories such as obligations, commitments, and expenditures. Data for accumulating cost and accounts receivable billing and collections are included in the Reimbursable Work Order Record.

The Job Order File provides the accounting data related to the compiled cost of a job order. This file also includes the name and address of the fund administrator, grantor, and any additional distribution data to be utilized for printing headings for reports.

The Master Billing Cross Reference File is composed of records of transactions for which activities will receive a bill. Whatever data is included on the original requisition will also be included in this file's records.

The payroll record data for each employee serviced by the user activity is recorded in the Master Employee Record. This file includes information pertaining to hourly rates, scheduled hours, and deductions.

The Non-Carried Demand History File compiles demand for all requested stock items which are not carried in inventory. After periodic review, a determination will be made as to which items are qualified to be carried in inventory.

The NSF/RIS Ledgers and Transaction Record Files are variable length records which contain the Allotment Ledger

and Tranaction Records. The ledger is used to record the transactions for each Stock Fund budget project and allotment handled by the user activity.

The Receipt History File answers questions from the local and integrated management level as to whether material has been received or not. The records of this file are maintained for two years. Records in the Receipt History File are input via the Receipt/Due File when records are checked for completeness and validation of input into the Supply Effectiveness Report.

The Requisition History File includes a record of all customer requisitions for which supply actions are complete. This file provides after-the-fact information on a historical basis.

The Repairable Induction Purge File involves both tape and disk. The completed repairable induction records are maintained on tape files, while active repairable induction records are on disk files.

A record of all error-prone transactions found during the processing of financial programs is located in the Suspense File.

The Purchase Cross-Reference File contains data that is referenced on the original purchase order and the purchase item identification number so that direct turnover actions may be generated.

The Transaction/Reconstruction File contains records generated by programs which modify data stored on disk files. The Transaction/Reconstruction File serves as a backup file. Upon receipt of a transaction and disk modification, the modified disk is rewritten in the Reconstruction File.

The Unfunded Accounts Receivable Ledger consists of records of all accounts which reveal a balance immediately following the monthly posting of sales and collections.

Records of outstanding obligations and commitments are found in the Unliquidated Transaction/Document Control File. Maintenance of labor transactions are by job order number, while material and public voucher transactions are by document number.

Records of all unmatched receipts and summaries from other Supply Officers are maintained in the Unmatched Summaries and Receipts File. These records are arranged in a sequential nature by type, document number, consignor, and stores account.

The WISS Supply MISR File is output weekly in order to inform managers about the amount of defective carcasses that are available in addition to the status of the parts required to repair them. This data is retrieved from the Master Stock Item Record.

The Fund Status File retains cumulative up-to-date operating target amounts for direct and reimbursable obligational authority, expense, and military expense

authorities. The Fund Status File is also utilized for controlling expenses at the organizational level of a Resource Management System operating budget environment.

Descriptions of costs accounts and organizational titles are found within the Title Table File.

The Master Leave Record is an account of the leave earned or used by each employee at an UADPS activity.

The Master Personnel Record is designed to the requirement specifications of the Office of Civilian Manpower Management and the Civil Service Commission.

III. PLANNING

When considering the application of UADPS-SP to a Data Base Management System, planning is extremely crucial. The planning process should include comprehensive studies of user requirements, feasibility, cost-benefit analysis, and detailed implementation planning in order to minimize any adverse impact that the data base approach can have on an organization [2: p. 5].

A recent study by the General Accounting Office (GAO) has explicitly stated that some federal agencies have done a poor job in planning for a Data Base Management System. These agencies have failed to confirm that a valid need for a DBMS exists, that the implementation is technically feasible, and that the system's effectiveness can be accomplished both efficiently and economically [2: p. 6].

The GAO study has also stated that approximatley six out of sixteen agencies had not matched the organization's information needs to that of available ADP resources. Without surveying the users' requirements, the agencies initiated actions to acquire a data base management system. As a result, substantial amounts of money were spent on ADP resources that were not needed. Approximately $1.2 million could have possibly been saved had the agencies made a determination of user requirements [2: p. 7].

A. ANALYSIS AND DESIGN

In order to successfully implement UADPS on a Data Base Management system there are several factors that must be considered. These factors include a preliminary analysis, an identification of objectives, specified alternatives, evaluation of alternatives, and design and implementation of the system.

1. Preliminary Analysis

The purpose of the preliminary analysis step is to determine whether data base processing is appropriate or feasible for an organization. The first prerequisite for the success of a data base project is the backing or approval of top management [3: p. 330]. The management of an agency intending to make use of a data base system must support the effort in three ways: (1) by making the management objectives clear to the system designers; (2) by supporting the effort with the people and time resources needed to support such an important undertaking; and (3) by being prepared to change some of its methods in order to use the new tool and information services available. Should the system designers and/or users experience some uncertainty from top management, the project should be cancelled until a more convenient time period.

The second prerequisite for a successful data base project is a desire by the users for an improved system. The fact that NSC Oakland is interested in developing their

own management information system implies that UADPS-SP does not provide managers with decision-making capabilities. Once the decision has been made that the establishment of a data base project is in order, only then is a data base project team formed. This team should include system analysts, a data base administrator, the UADPS-SP Coordinator, and personnel who are familiar with computers and data base management systems in general. The participation of these personnel is absolutely essential.

The leader of any data base project team should be extremely knowledgeable of the requirements of the systems. The size and mix of the project will fluctuate depending on the needs of the team and the requirements of the organization. In order to keep chaos and confusion to a minimum, the overall objective of the project should be discussed with each team member along with each individual's specific assignment or tasks.

Another task that has to be considered in the preliminary analysis phase is defining the function of the Data Base Administrator (DBA) [2: p. 331]. A decision has to be made as to whether the DBA and the UADPS-SP Coordinator will exist as separate billets or combined as one job. Because of the important role that the DBA plays in managing a Data Base Management System, the DBA function will be discussed more in detail in a separate section.

2. Identifying Objectives

Another important consideration for a data base project is the identification of objectives. These objectives should be specific and clearly explain what the data base system is to accomplish. Most of the information that would be used in determining what the Data Base Management System's objectives would be could be obtained from interviews with the various users and functional managers. The team can approach the interview from the top down or from the bottom up. The interviewers will find that there exists a different requirement for a Data Base Management System at different levels of the organization. The interview should include questions pertaining to currently used reports -- those which are very useful and those which are not useful, -- to file maintenance actions, and to determination of what can be done to help accomplish the workers' jobs more easily. After the interview is completed, the requirements should be listed on separate sheets of paper and assembled into a notebook. This documentation will become highly beneficial during the acceptance testing period because all concerned will be able to see if the Data Base Management System is serving its intended purpose.

Too often, when the organizational objectives are identified early in the project, they are not always unbiased. Some managers unknowingly have their preferences built into the proposed objectives. For example, a manager may tell

the designer that it would also be nice if the system performs a certain function in addition to those detailed in the design specifications. The violation of objectivity usually occurs at the functional or operational managerial level.

3. Specifying Alternatives

In this area of analysis and design, the requirements book mentioned in the objective identification section is used as input. In specifying the alternatives, one has to look at establishing a Data Dictionary from the aforementioned requirements notebook. The Data Dictionary is a tool which will be highly useful to the entire organization. The Data Dictionary helps in eliminating much of the redundancy from the data base. It will also be discussed in a separate section.

From the Data Dictionary, a preliminary database design is formulated. This action is normally accomplished in two phases. In the first phase, the data is grouped by content, frequency of use, and size. For phase two, designs are completed by specifying which fields will be keys and how the data relationships will be represented.

Lastly, some consideration has to be given to hardware and the possible communication system that will support the data base. The user should talk with experienced users of the proposed system in order to identify the weak points and strong points.

4. Evaluation of Alternatives

Once the alternatives are listed, evaluation of the alternatives is begun by establishing some criteria for judging the options selected. Additonally, some weight is applied to each criterion according to its relative importance. These criteria can be established for the Data Base Management System.

There are several ways that the project team can exercise judgment in determining which data base system is best for the organization. One of the most inexpensive means of gathering data is to communicate with/interview current data base users. There are also consulting firms available that specialize in Data Base Management Systems. Another source is the published evaluation of data base systems.

In order to evaluate efficiency and effectiveness, the project team can utilize a benchmark test. A benchmark is a trial run of data similar to that which will actually be run on the system. One drawback of a benchmark is that its success is dependent on the team's understanding of what is supposed to occur during benchmark trials [3: p. 346].

Finally, the team has to select the best of the alternatives that will pay for itself within a reasonable time period. Such a major undertaking is considered to be a capital investment. Since the selected project is not to be purchased today and discarded tomorrow, much effort has

to be expended in order to estimate as closely as possible its future value to the organization.

5. Design and Implementation

As soon as the project team has chosen the best possible alternative for the data base project, the next function is to complete the design. As the team advances to this phase, they can generally expect a change in personnel because the project requirements will also change. It is in this phase that training can be viewed as an invaluable asset. This education will prove extremely beneficial in documenting the schema design as well as determining which fields will be labelled as primary or secondary keys. Other issues which should be addressed are security, backup, and recovery procedures.

The plan can be tested by closely examining the requirements notebook and selecting a module to implement as a test program. It is very important that the plan be a success. This is one way of obtaining the full trust and confidence of top management. Otherwise, there may be indications that the organization's monetary resources are being wasted. Of course once implementation begins, the team should expect delays and problems. Slack time should be included in the schedule in order to compensate for these delays and problems. In the event that failure should occur, there should be some form of contingency planning.

B. DATA BASE ADMINISTRATOR

The Data Base Administrator is referred to as the custodian of the data. Being custodian is quite different from being the owner of the data. The Data Base Administrator does not know all the bits and pieces, but maintains an overall view of the data that is held within his or her domain.

Although the requirement for a Data Base Administrator became apparent in the 1970's, the DBA's place within the organization still remains undecided today. The position is perceived to be that of a technician by some, and that of a manager by others. A general consensus reveals that the DBA should be higher in the organizational structure than the head data processor. Regardless of where the DBA position fits into the organization, the billet should be created during the transitioning period [4: p. 134]. The individual who is selected for this position must have data processing experience in conjunction with having good rapport established with the users and data processing and management personnel as shown in Figure 3-1 on page 30 [3: p. 361]. This is the reason the Data Base Administrator should be selected from within the organization. The Data Base Administrator also serves as a mediator when conflict occurs between different departments.

If an application programmer wishes to establish a new record, modify an existing record, or expand the size of a

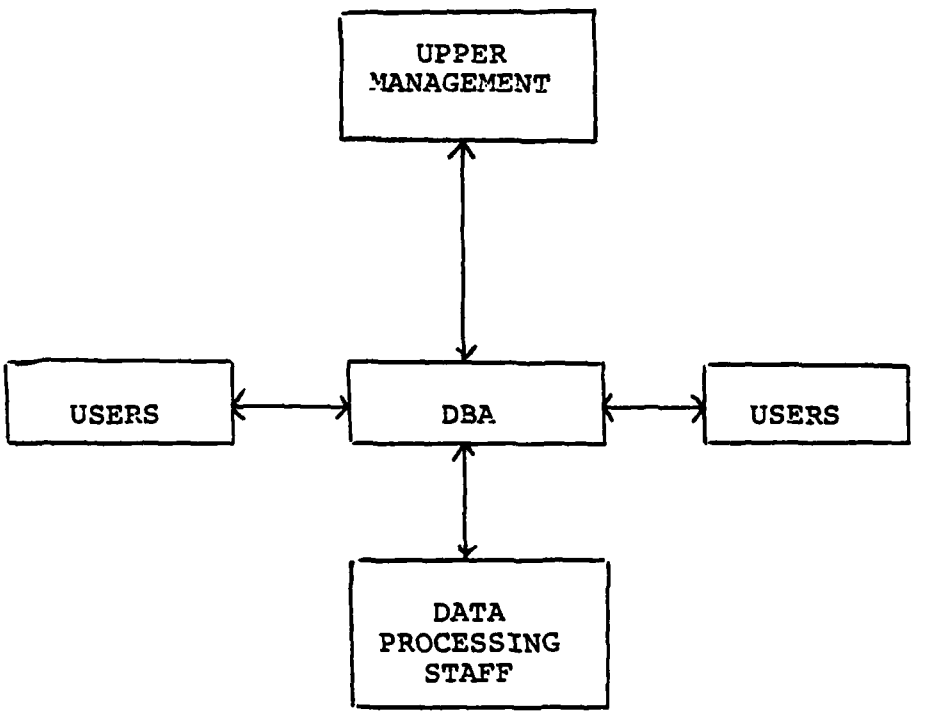

FIGURE 3-1.

Approximate DBA Organizational Relationships

data item, permission must be requested from the DBA. The Data Base Administrator will make the final decision based on how any change will impact the entire organization. Figure 3-2 on page 32 explains this process [5: p. 225].

C. DATA DICTIONARY

The Data Dictionary is a tool for recording and processing information about the structure and usage of data. It is also used to provide information about data and data bases. Because data is such an important corporate resource, it should be properly managed. The entire organization benefits from these efforts.

The listings and reports generated from the Data Dictionary are excellent educational tools which have proven helpful in reducing training and indoctrination time for new personnel. No longer will non-data processor professionals be kept in the dark as to which information is available, how current it is, who is responsible for it, and how the required data can be accessed.

Since a Data Dictionary is a central repository for information about a Data Base Management System, it is also in an ideal position to serve as a focus in enforcing standards for a DBMS [4: p. 147].

By being a "roadmap" for the programmer who performs maintenance, the Data Dictionary is an essential component in stabilizing software costs.

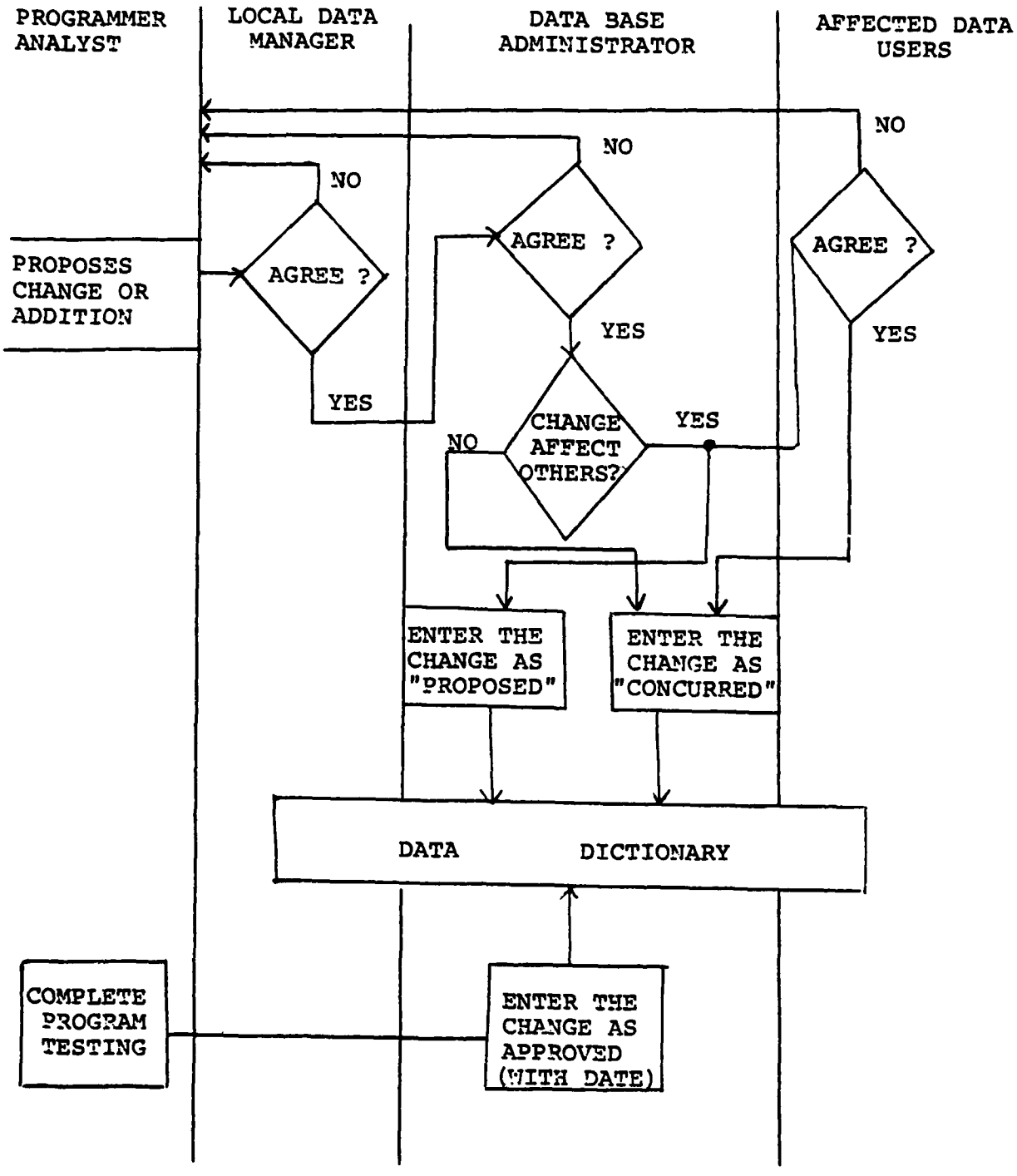

FIGURE 3-2.

A Data Dictionary Used In The Data Approval Process

IV. APPLICABILITY OF UADPS-SP TO A DBMS

The advantages provided to users when utilizing a Data Base Management System include the reduction or elimination of data duplication, compatible data, and the opportunity to record data only once.

Fortunately, UADPS already has some of these features incorporated within the system by design. However, there are still some shortcomings in the current system that may be alleviated by using a DBMS.

For example, in order to process or access files under the present system, the necessary tape or disk drives must be mounted first. The highest level of interface between the functions performed at NSC Oakland and the UADPS-SP system is at the application level. There are approximately eight applications designed within the system. Since it is not possible to directly access a file, the use of a Data Base Management System could provide users with the capability to perform this function.

Another area at NSC Oakland where a DBMS would prove to be beneficial is in shipping and receiving. If a customer submits a requisition for an item that is available in stock, the supply center will provide the customer with "BA" status which implies that Oakland is the holder of the requisition and is processing the item for shipment. Once

the material has been removed from its storage location for packing and preservation, there is no way to track the most current status as to where the part is located within the supply center. There are two indicators which may inform the support activity that the part was actually shipped: feedback from the customer is one method of determining if an item was shipped; and the flight manifest, which is a listing of all passengers and freight assigned to an aircraft, is the other method.

UADPS-SP's implementation on a DBMS would also require the professionalism and managerial skills of the UADPS-SP Coordinator and the Data Base Administorator. Both people perform extremely important functions within the organization. The UADPS-SP Coordinator is the focal point in the organization for all UADPS matters. The Coordinator is also responsible for all central files pertaining to UADPS correspondence, programming documentation, and the verification of valid change requirements. The Data Base Administrator is responsible for the data base system tuning which includes making the necessary changes and modifications to the system in order to improve performance. A decision has to be made early in the project as to whether the UADPS Coordinator and DBA duties will be consolidated or remain separate. If the two jobs remain separate, the creation of one additional billet may have some impact on NSC Oakland's operating funds budgeted for civilian payroll. With regard to approving or

disapproving changes for a Data Base Management System, this function is performed at the organizational level by the DBA. This same task is performed external to the Navy Supply Center by the Fleet Material Support Office (FMSO). The Fleet Material Support Office is the central design agency for the Naval Supply Systems Command (NAVSUP). In its role as the central design agency, FMSO is responsible for the development, design, analysis, and maintenance of all UADPS-SP programs. FMSO is also responsible for making recommendations to NAVSUP pertaining to any change proposals.

All user activities forward their requirement changes to NAVSUP, who in turn reviews the changes and forwards them to FMSO. If these changes are found to benefit the entire Navy Supply System, FMSO issues the requirement changes to all user activities in the form of a program change. If an existing program is causing detrimental problems on the stock point's support operation, a trouble report is submitted by the affected activity directly to FMSO as described in Figure 4-1 on page 36. Because of NAVSUP's goal of obtaining uniformity and conformity throughout the Navy Supply System, it is very unlikely that FMSO will relinguish any of its responsibilities in the near future.

One of the weak points of UADPS-SP that is encountered by some managers and division directors at NSC Oakland is the lengthy amount of time it takes for FMSO to reply to a submitted change proposal. The reason for this delay is

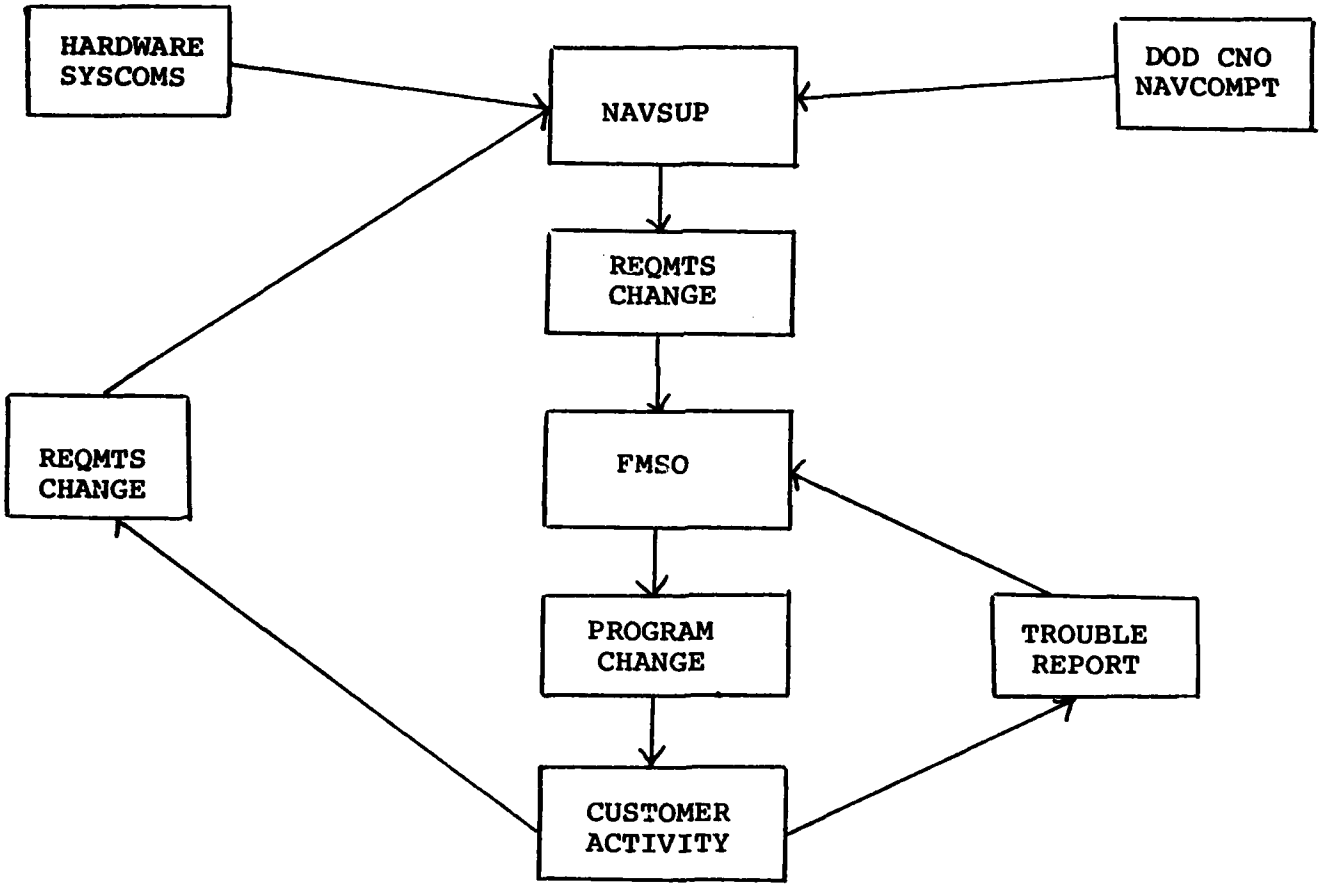

FIGURE 4-1.

System Relationships

because members of some of the user activities meet twice a year in order to review all of the proposed changes. Again, only after careful review does this group decide on the changes which offer the best efficiency and effectiveness for the entire supply system.

UADPS-SP, in general, is a very large system which contains numerous records. It is not considered economically feasible to convert the entire system to a Data Base Management System. In the event that NSC Oakland were to convert to a DBMS, consideration could be given to applying the data base system to files which are related to customer inquiries such as the Requisition Status File and the Master Stock Item Record (MISR). The MISR at Oakland contains over 7ØØ,ØØØ records of 5ØØ characters each. The Requisition Status File has approximately one million records with 164 characters each. Experience has proven that these two files play an important role in providing supply requisition status to customers supported by NSC Oakland. Experience has also indicated that users would prefer to have the information from queries readily accessible by means of terminals than to depend on huge and outdated listings. Replies to queries from users are received very slowly from the UADPS-SP system. If a stock screen were requested for left-hand skyhooks, by local area or nationwide, this function could be performed by UADPS. However, the reply could not be quickly accessed as on a Data Base Management System.

The implementation of UADPS-SP on a Data Base Management System will require that the applicable files be rewritten. Regardless of the size of the files, this evolution can be costly. The vendor's estimate for purchasing an off-the-shelf data base package, or a modifiable one which can be designed to meet the needs of the users, ranges in price from $15Ø,ØØØ to over $3 million. The costs of training personnel and procuring new of additional hardware are not included in this estimate. In addition, operating the current system as a back-up for the new system will also prove to be very expensive.

UADPS-SP, in its present condition, is not designed to operate in a user-friendly mode. This feature would be highly beneficial in providing assistance to new employees who are not familiar with the system. It would also be advantageous to have this feature incorporated within a DBMS because training costs would be greatly reduced. Because the turnover of civilian and military personnel will occur on a regular basis due to reassignments, retirements, and promotional opportunities, the supply center will always benefit from having menu-prompted selections available to assist users. Some Data Base Management Systems are, by design, extremely complex. Having to learn the concepts of a DBMS and of a UADPS-SP could turn out to be a cumbersome task.

V. CONCLUSION

Although this thesis research has centered on NSC Oakland, the ideas expressed are applicable to any activity that has the UADPS-SP system. It must be understood that any successful major undertaking at NSC Oakland will have an impact on the other activities. Because costs are involved, careful planning must be exercised in order to bring the system on-line on an incremental basis. For example, new or additional hardware may be required in addition to a comprehensive training package. If NAVSUP is to continue its goal of uniformity, any additional requirement for a Data Base Management System would be applicable to each of the individual activities. When the derived benefits are analyzed with costs, it appears that costs outweigh the benefits to be gained from converting a few of the UADPS-SP files to a Data Base Management System. Many times, the DBMS cost-penalties are often hidden by the more visible and obvious benefits as shown in Figure 5-1 on page 40 [6: p. 490]. It can therefore be concluded that none of the UADPS-SP files should be converted to a Data Base Management System.

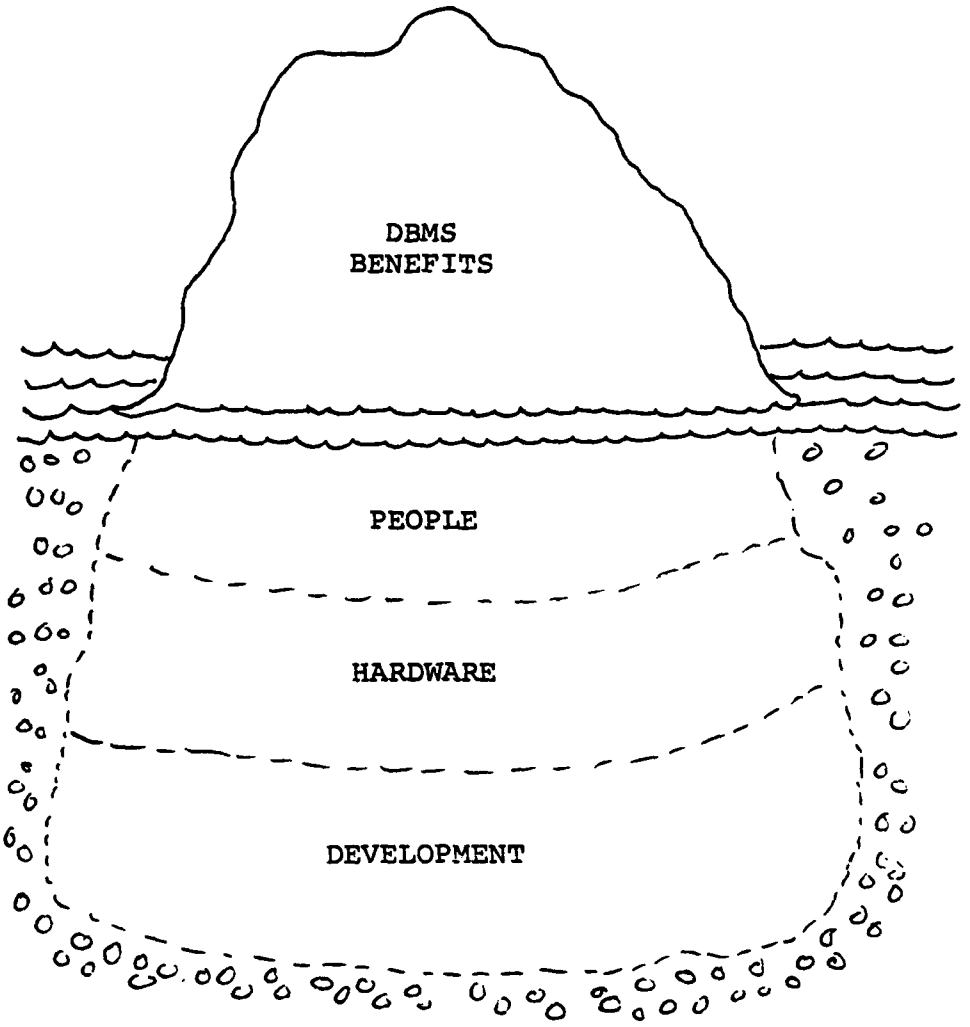

FIGURE 5-1.

DBMS Cost/Benefits "Iceberg"

DBMS Cost Penalties Are Often Hidden By The More Obvious And Visible Benefits.

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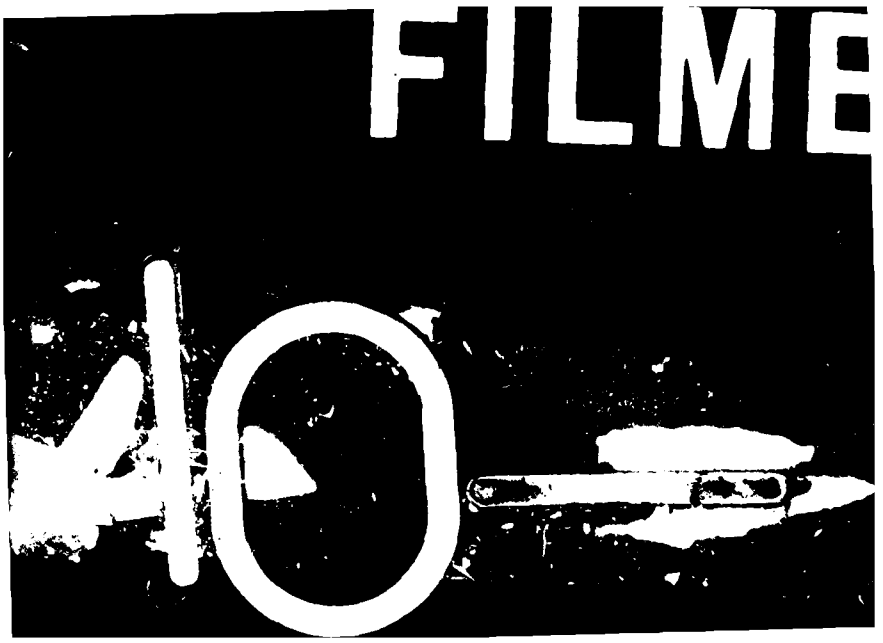
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